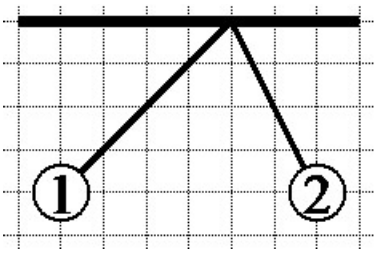
NAME _____ DATE _____

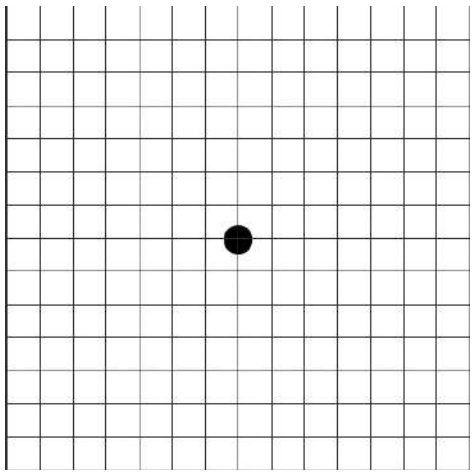
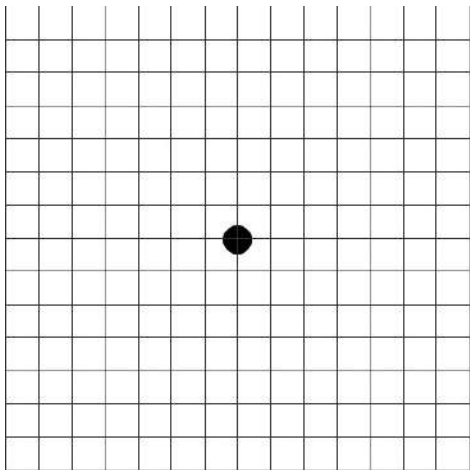
Scenario

Balloons 1 and 2 hang from strings connected to the same point in the ceiling. Both balloons are given the same sign net charge but not necessarily the same magnitude of charge. The balloons hang in equilibrium as shown in the diagram. The grid in the background may be helpful in estimating the angles or slopes of the strings.



Using Representations

PART A: Each dot below represents one of the balloons. Draw a free-body diagram showing and labeling the forces exerted on each balloon while they hang in equilibrium. Use the grids to draw the relative lengths of all vectors to reflect the relative magnitudes of all the forces.

Balloon 1	*Balloon 2*
	

Argumentation

PART B: Mark an answer to each of the following questions:

i. Which balloon carries a greater charge?

_____ Balloon 1 _____ Balloon 2

_____ Both have the same charge. _____ There is not enough information.

ii. Which balloon has a greater mass?

_____ Balloon 1 _____ Balloon 2

_____ Both have the same mass. _____ There is not enough information.

iii. The string supporting which balloon exerts a stronger tension force?

_____ Balloon 1 _____ Balloon 2

_____ Both exert the same tension. _____ There is not enough information.

PART C: In a clear, coherent, paragraph-length response that references your diagrams from Part A along with other appropriate physical principles, justify your selections to the questions in Part B.